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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,465	01/23/2002	Toshihiko Yokoyama	02975.000015	6428

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EXAMINER

SHENG, TOM V

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 05/20/2004

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/052,465

Applicant(s)

YOKOYAMA ET AL.

Examiner

Tom V Sheng

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-5 is/are allowed.
- 6) ☒ Claim(s) 6, 8 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 6 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Art and Muraji et al. (US 5,260,797).

As for claim 6, Admitted Art teaches a projection type image display device (figure 8; projection device 200; see page 1, paragraph 3 through page 3, paragraph 8) comprising:

a plurality of image display elements (liquid crystal panels 208, 209 and 210), each of which modulates light rays in accordance with an image signal;

a color synthesizing optical element (color synthesizing dichroic prism 211), comprising a dichroic film including a gradient film (gradient membrane as the dichroic membrane) in which one of its thickness and refractive index *varies in a predetermined direction* (slantingly varies in a specific direction), the color synthesizing optical element synthesizing the light rays modulated by the plurality of image display elements;

a projection optical system (projection lens group 212) projecting the light rays synthesized by the color synthesizing optical element (as shown) onto a projection surface (screen 213).

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Admitted Art does not teach a signal processing circuit which corrects the image signal by one of each pixel and each pixel area such that brightness irregularity *in the predetermined direction* of an image projected by the projection optical system is reduced or cancelled.

Muraji also teaches a projection type color image display apparatus. In particular, he teaches (see figures 6-8) correcting for the different illumination characteristics Br, Bg, and Bb in the horizontal direction of the projection lenses 62, 63 and 64 by means of a LUT 83 for red video signal and a LUT 84 for blue video signal that reads on claimed storage circuit. Muraji further teaches a video signal correction circuit 69 that provides signal voltage corrections based on the LUTs for the red and blue video signals, resulting in a projected image free from unevenness of color, and which reads on claimed brightness irregularity correcting circuit. See column 5, line 54 to column 7, line 27.

It would have been obvious for one of ordinary skill in the art at the time the invention was made to incorporate Muraji's video signal correction circuit and corresponding LUTs into Admitted Art, since both are for correcting brightness irregularity in the same horizontal direction where the color light rays converge, thus allows using the combination in brightness irregularity correction.

As for claim 8, Muraji teaches that the extension points Xr, Xg, and Xb of the projection lenses 62, 63, 64 are in the same horizontal direction. Also, it would simply be logical and simpler for the condensing points of the light rays to be in one direction if they could not converge at one point.

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Claim 9 is read by the well-known property of dichroic film and Admitted Art's color synthesizing dichroic prism 211.

Allowable Subject Matter

3. Claims 1-5 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter: none of the prior arts of record teaches, among other limitations, the specific limitations of "a color synthesizing optical element, comprising a dichroic film including a gradient film in which one of its thickness and refractive index varies in a substantially horizontal direction ..." and "a signal processing circuit which corrects the image signal such that brightness irregularity in a substantially vertical direction of an image projected by the projection optical system is reduced or cancelled" of claim 1, and "a color synthesizing optical element comprising a dichroic film including a gradient film in which one of its thickness and refractive index varies in the first direction ..." and "a signal processing circuit which corrects the image signal such that brightness irregularity in the second direction of the image is reduced or cancelled" of claim 5. Claims 2-4 depend on claim 1.

5. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: none of the prior arts of record teaches the additional limitation "wherein the

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signal processing circuits corrects the image signal such that the brightness irregularity in the predetermined direction which cannot be corrected by the gradient film is cancelled" of claim 7.

Response to Arguments

7. Applicant's arguments, see amendment, filed on 3/11/2004, with respect to claims 1-5 have been fully considered and are persuasive. The rejection of claims 1-5 has been withdrawn. See rejections regarding newly added claims 6-9.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom V Sheng whose telephone number is (703) 305-6708. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Sheng
May 10, 2004


Amare Mengistu
Primary Examiner